



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

March 17, 1992

Michael E. Cavalier, P.E.
Senior Project Manager
Weston
5599 Dan Felipe
Suite 700
Houston, Texas 77056

Subject: Comments on the Remedial Design Consent Decree for Arkwood Superfund Site, Omaha, Arkansas

Dear Mr. Cavalier:

Please find attached a copy of McKesson Service Merchandisers Co. comments to DOJ on the Arkwood RD consent decree. It seems as if McKesson Corporation has some fundamental disagreements with the former MMI shareholders. Many of the comments presented by ERM parallel the points you made last week.

If possible, I would like to have your review comments by 3/27/92. The following issues should be included;

- 1) the adequacy of the data collected in the RI to estimate the volume and concentration of material to be treated vs the new information presented by Dr. Bern of IT Corp. Dr. Bern contends that the original sampling program was biased, *Yes + No*
- 2) whether the sampling method outlined in the SOW is adequate to further define the volume of soil to be remediated during predesign studies, *Yes, modification*
- 3) ERM's analysis of the cost effectiveness of offsite incineration vs onsite incineration, and HOOT w/ dioxin present, *Yes*
- 4) the technical merit of biotreatment as proposed by Dr. Bern and refuted by ERM. *W/out Dioxin → Yes*
otherwise → No

Sincerely,

Rick Ehrhart
Rick Ehrhart
Remedial Project Manager
AR/LA Section (6H-EA)

Two main issues:
• Volume
• Dioxin

965454



LAW OFFICES

MITCHELL, WILLIAMS, SKELIG, GATES & WOODYARD

380 WEST CAPITOL AVENUE SUITE 1000
 LITTLE ROCK, ARKANSAS 72201-3523
 TELEPHONE 501-688-8800
 TELEFAX 501-688-8807

WASHINGTON, D.C. OFFICE

1420 NEW YORK AVENUE N.W. SUITE 1030
 WASHINGTON, D.C. 20005-2122
 TELEPHONE 202-347-4800
 TELEFAX 202-347-7500

WRITERS DIRECT DIAL

501-688-8816

N. MAURICE MITCHELL
 RICHARD A. WILLIAMS
 JOHN S. SEUS
 JOSEPH W. GELZINE
 W. CHRISTOPHER BARKER
 BYRON FREELAND
 ALLAN GATES
 WILLIAM M. L. WOODYARD, III
 MICHAEL C. O'MALLEY
 JOHN C. LESSEL
 DOAN FOSTER
 JEAN D. STOCKBURGER
 ANNE WITNEY
 EDWIN P. JACKSON
 SHERRY P. BARTLEY
 CRAIG WESTBROOK
 SUSAN GORDON DUNTER
 R. T. SEARD, III
 W. KIRBY LOCKMART
 MARCELLA J. TAYLOR
 ARE MONROE, III
 G. NICHOLAS THOMPSON
 FREDERICK S. CAMPBELL
 ROBERT M. EUBANKS, III

WALTER S. WRIGHT, JR.
 LYN PEOPLES PRUITT
 SCOTT CLEVELAND
 BLANCE R. MILLER
 WILLIAM L. MASSEY
 WYLLIE D. CRYN, III
 RICHARD L. ANGEL
 JAMES L. MARTIN
 JEFFREY M. THOMAS
 COLLEEN M. BARGER
 STUART A. MILLER
 PHILLIP A. DESER
 ABRAHAM W. BOOCLAVERT
 DONALD L. PARKER II
 CHRISTOPHER T. ROGERS
 O. MILTON FINE II
 SHEILA E. FREEMAN
 AMELIA MURLEY RUSSELL
 RHONDA M. WHEELER
 STACEY ALISON DEWITT
 MARSHALL S. HEY
 MARSHA T. FOSTER

COUNSEL
 EDWARD B. OLLON, JR.

March 10, 1992

Assistant Attorney General
 Environment & Natural Resources Division
 United States Department of Justice
 10th and Pennsylvania Avenue, N.W.
 Washington, D.C. 20530

Federal Express

Re: United States v. Mass Merchandisers, Inc.,
 D. J. Ref. 90-11-2-190A

Dear Sir:

Mass Merchandisers, Inc. ("MMI," now McKesson Service Merchandising Co.) submits this letter and the accompanying attachment in response to the request for public comments published by the Department in the Federal Register on February 4, 1992. 57 Fed. Reg. 4216. In particular, MMI wishes to respond to the comments which it understands have been filed in a letter dated March 4, 1992, by Martha C. Brand of Leonard, Street & Deinard on behalf of a group of former MMI shareholders.

The comments of the former shareholders present a very narrow claim. They contend that uncertainty about affected soils volumes makes it imperative that alternative treatment remedies that will meet the Record of Decision ("ROD") cleanup standards not be precluded by the consent decree. The former shareholders contend that entry of the decree should be postponed until an \$8,000 field screening program is performed to delineate more precisely the volumes of affected soils and other materials to be treated at the site. According to the former shareholders, the information that would be developed by their proposed screening program would lead to the selection of a more cost-effective remedy at the site. More specifically, the former shareholders argue that biological treatment should be added in lieu of, or in

3117

MITCHELL, WILLIAMS, SELIG, GATES & WOODYARD

Assistant Attorney General
March 10, 1992
Page 2

advance of, the incineration of any affected materials. They also argue that off-site incineration will be more cost-effective than on-site incineration if any further treatment is needed after the biological treatment step.

Because the former shareholders' comments depend primarily on technical questions regarding the adequacy of the data currently available about the site, MMI asked ERM-Southwest, the professional consulting firm that performed the site Remedial Investigation and Feasibility Study, to review the former shareholders' comments. A copy of ERM-Southwest's review is attached as Exhibit A to this letter. Based on ERM-Southwest's analysis, MMI offers the following comments on the former shareholders' contentions.

First, MMI doubts that the \$8,000 screening program proposed by the former shareholders would produce any meaningful new information. The field screening program proposed by the former shareholders, according to ERM-Southwest, would screen samples for pentachlorophenol ("PCP") only and therefore would be considerably more limited than the pre-design studies called for by the Statement of Work (Appendix B of the decree), which will combine field screening for PCP and confirmatory laboratory analysis for PCP, PNAs, and dioxin. } True

Second, MMI rejects the notion that there are inadequate data to proceed with entry of the consent decree at the present time. It is always possible to argue that more sampling and analytical data would provide a better understanding of a Superfund site. As a practical matter, however, if one sampled every square foot of a site, the costs of collecting and analyzing the samples would rapidly exceed even the most costly remedy. At some point the experts and regulators most familiar with the site must make a decision that there are enough data available to make a well-informed decision regarding the proper remedy. In this case ERM-Southwest has already collected and analyzed a substantial number of samples. Furthermore, as a part of the pre-design work required by the consent decree, there will be additional samples collected and analyzed. Based on ERM-Southwest's analysis of the former shareholders' comments, MMI does not see any plausible basis for the contention that the data available regarding PCP or dioxin at the site are insufficient to develop volume and cost estimates. } Agree

Third, while MMI shares the interest of its former shareholders in seeking the most cost-effective remedy for the site in question, MMI believes that many of the concerns advanced in the former shareholders' comments arise out of a lack of familiarity on their part with the prior history of operations at } Yes, in part.

MITCHELL, WILLIAMS, SELIG, GATES & WOODYARD

Assistant Attorney General
March 10, 1992
Page 3

the site and the fairly extensive body of data regarding environmental conditions and treatment costs. Exhibit A refutes the contention that there are "too many unknowns" at this time.

Fourth, Dr. Bern's report simply does not support Ms. Brand's contention that further sampling will produce volumes that would make his remedy cost effective.

Absolutely

Fifth, Figure 1 and Table 1 of Exhibit A graphically portray the cost ineffectiveness of off-site incineration, even assuming it were available for the Arkwood soil and sludges.

But it is not.

Finally, with respect to the three enumerated requests in the concluding paragraph of Ms. Brand's letter, MMI submits that:

(1) It agrees that the Department should consider the exchange of views reflected in Ms. Brand's submittal and MMI's comments. Indeed, it is MMI's understanding that the Department is obligated by its own regulations to do so. See 28 C.F.R. § 50.7.

?

(2) MMI does not object to postponing the entry of judgment until May 1, 1992 to allow further dialogue between Dr. Bern and MMI's consultants. However, based on the review of Dr. Bern's comments by MMI's consultants which is reflected in the attachment to this letter, it appears that most of Dr. Bern's concerns arise out of his inaccurate or incomplete understanding of the Arkwood site.

Yes, we agree.

(3) MMI flatly rejects the former shareholders' unsubstantiated suggestions that the samples collected during the Feasibility Study are "biased" in any way. MMI agrees that further sampling is appropriate, and reiterates that such sampling is called for by the pre-design work contemplated by the decree as it is currently written. For the foregoing reasons, MMI doubts that the \$8,000 effort proposed by Dr. Bern would significantly advance an understanding of the site or warrant a change in the decree.

Agree

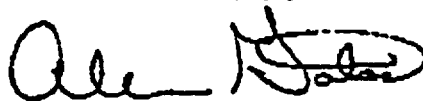
MMI remains ready to answer any questions or provide any further information which the Department or the district court may have.

MITCHELL, WILLIAMS, SELIG, GATES & WOODYARD

**Assistant Attorney General
March 10, 1992
Page 4**

Respectfully submitted,

**MITCHELL, WILLIAMS, SELIG
GATES & WOODYARD**

By 

Allan Gates

Counsel for MMI

**AG:gs
Attachment**

**cc: Molly E. Hall, Esq.
Richard L. Ehrhart ✓
Martha C. Brand, Esq.**

6/17

ERM-Southwest, Inc.

16000 Memorial Drive • Suite 200 • Houston, Texas 77079-4006 • (713) 496-9600 • Fax (713) 496-9698

March 9, 1992

Ms. Jean A. Mescher
McKesson Corporation
One Post Street, 28th Floor
San Francisco, CA 94101-5296 W.O. #92-19

Re: Arkwood, Inc. Site
Technical Response to Dr. Bern's Letter dated March 3, 1992
and Ms. Martha Brand's Letter dated March 4, 1992

Dear Ms. Mescher:

We have reviewed the latest correspondence from Dr. Joseph Bern and from Ms. Martha Brand regarding suggested changes to the EPA's selected soil remedy required by the Record of Decision (ROD). While we agree that it makes sense to use the most cost effective means to treat whatever volume of soil may exist at the Arkwood site, we feel the technical reasoning behind their arguments is flawed.

Throughout Dr. Bern's correspondence, he states that the FS has overestimated the volume of soil which needs to be excavated and treated. He supports this by contending that we have been too conservative in our approach to delineating the 300 mg/kg PCP isopleth and we have based our calculations for dioxin on a biased sampling program, an insufficient amount of data and incorrect assumptions regarding its distribution.

He further contends that only a small fraction of the material on site will fail the cleanup criteria and will require incineration after his proposed biotreatment.

The following sections address these issues.

I. PREDESIGN SAMPLING PROGRAM

In the March 4, 1992 letter from Martha Brand to the U.S. Department of Justice on behalf of the former MMI shareholders, Ms. Brand states "Dr. Bern has concluded that based on the on-site soil sampling that has been done to date, ... there is insufficient data on the volume of soils that must be excavated at the site and the concentrations of PCPs, dioxins and PNA in those soils..." She further states that "An unbiased sampling program must be implemented in the pre-design stage beyond that called for in the Statement of Work..." and that "Dr. Bern has suggested an unbiased

EXHIBIT A

Page 1 of 6

7/17

AP088092-C92

NEW ORLEANS: 3501 N. Causeway Blvd. • Suite 200 • Metairie, LA 70002 • (504) 831-8700 • Fax (504) 831-6742
AUSTIN: 1120 S. Capital of Texas Hwy. • Bldg. II, Ste. 205 • Austin, Texas 78746 • (512) 328-9200 • Fax (512) 328-9214
DALLAS: 4100 Spring Valley Road • Suite 200 • Dallas, Texas 75244 • (214) 458-7272 • Fax (214) 458-7204
EL PASO: 5959 Gateway West Boulevard • Suite 655 • El Paso, Texas 79925 • (915) 779-6668 • Fax (915) 779-6632

An affiliate of the Environmental Resources Management Group with offices worldwide



ERM-Southwest, Inc.

Ms. Jean A. Mescher
McKesson Corporation
March 9, 1992

field screening program that will cost approximately \$8,000 to determine if the pattern to the PCP contamination on the site is as delineated by McKesson."

We feel there are three major deficiencies in Ms. Brand's comments regarding Dr. Bern's proposed sampling program.

First of all, we agree additional data is needed prior to design. That is the reason the Statement of Work (SOW) includes the requirement that "Prior to beginning the Remedial Design, a series of Predesign Studies will be performed to gather additional data necessary for design." Although we feel the information contained in the FS was sufficient and accurate enough to perform the necessary evaluation of remedial alternatives, we do not feel comfortable basing our final remedial design solely on that data. ✓/Yes

Secondly, although Dr. Bern's argument is centered around what he perceives as our misinterpretation of dioxin data, his sampling program does not include any further sampling or analysis for dioxin. This means that after his proposed sampling program is complete, we will not have any more information than we currently have regarding the presence or distribution of dioxin. Good pt.

Thirdly, we assume the additional \$8,000 sampling program Ms. Brand refers to is the one Dr. Bern mentions in his March 3 letter. His proposal is to develop a sampling program based on use of the Ensysis, Inc., immunoassay kit which, he notes, he cannot guarantee will work or will cost the \$50 per test as predicted by the manufacturer. This is a field screening device for PCP only. His proposed sampling program makes no mention of any confirmatory laboratory analyses to prove the field kits nor does he mention the mobilization or labor costs associated with such a sampling program. Yes

The sampling program in the SOW already includes a proposed field screening method for PCP. The Ensysis, Inc., method will likely be the method used. Therefore, the program proposed by Dr. Bern is already incorporated in the SOW sampling program. In addition, the SOW sampling program will include:

- o Ten samples roughly within a boundary very close to the one in Dr. Bern provided in his February 24 letter,
- o Up to 60 additional sample locations at three vertical intervals (6 inch increments) on a 50 foot grid between the boundary of the area mentioned above and our 300 ng/kg isopleth, and

ERM-Southwest, Inc.

Ms. Jean A. Mascher
McKesson Corporation
March 9, 1992

- o Six additional borings up to 7 feet deep and sampled up to eight times per boring in the main site's 1 to 5 foot excavation area. *OK*

All of these samples in our proposed program will be analyzed for PCP in the laboratory using a GC/MS (SW-846 8270). During the course of collecting the above samples for shipment to the laboratory, we will split up to 30 samples and analyze them for PCP in the field with field test kits (most likely the Ensys). This will allow us to verify the accuracy of the field test kits. In addition, we will analyze up to ten of the collected samples for dioxin to support the correlation we believe exists between the PCP levels and dioxin levels and we will analyze up to twenty five of the collected samples for c-PNAs to support the correlation we believe may exist between the PCP levels and c-PNAs. *May need to increase*

We feel our program will give a much more definitive answer than the one proposed by Dr. Bern since ours will include laboratory and field analysis of PCP plus additional analyses for dioxin and c-PNAs. *Yes*

II. QUANTITY OF MATERIAL REQUIRING INCINERATION

Dr. Bern claims that only three percent of the total affected material will need to be incinerated off-site using his proposed remedy. You have informed us that Dr. Bern conceded that the three percent number was only a guess and is not supported by any of the RI/FS or treatability data. *Whoa!*

In his original proposal outlined in his February 24 letter, Dr. Bern advocates the removal of wood particles prior to treatment by sieve and wash. However, he makes no comment regarding their treatment. According to the FS treatability studies, the wood particles alone may constitute up to two percent of the material on the site. Since we would expect these particles to fail the cleanup criteria and require incineration, one must conclude that the remaining one percent of Dr. Bern's original three percent estimate for material requiring incineration would result from dioxin-containing biological treatment residue. We do not find any data which will support this assumption. *FS also showed that wood removal wasn't practical*

Since the dioxin will not biodegrade and will concentrate in the biologically treated fines residue, Dr. Bern's estimate may be off by as much as a factor of six or more. The impact which increased quantities of material requiring incineration even twofold will have on treatment costs is shown graphically in Figure 1 and detailed in Table 1. The information illustrates the effect on the *Sensitivity analysis to Bern never considered.*

ERM-Southwest, Inc.

Ms. Jean A. Mescher
McKesson Corporation
March 9, 1992

EPA selected soil remedy and Dr. Bern's remedy using both his three percent values and a potential six percent value of residual material.

In a telephone conversation with the operator of the Coffeyville, Kansas, incinerator, the operator indicated they had just completed their test burn but had not yet resolved certain problems which would allow them to routinely accept dioxin containing waste. He also indicated the cost of incinerating dioxin wastes would likely be double that charged for other wastes. The incinerator is currently charging \$1.00 to \$1.20 per pound for materials accepted. Figure 1 is based on \$1.00 per pound.

*Remote
Chances*

A review of Figure 1 indicates that a remedy incorporating off-site incineration is highly sensitive to volumes and could result in rapidly escalating costs.

*Trans-
port
costs
+ incinerator
operations*

III. SITE OPERATIONS

Many of the arguments Dr. Bern makes to support his claim regarding dioxin data are possibly due to his not having all the facts regarding operations at the site.

Yes

Several clarifications may answer some of Dr. Bern's concerns expressed in his March 3 letter. These clarifications are as follows:

- o The material used to treat the wood at the site was composed of approximately 95% diesel oil or Number 2 fuel oil and 5% PCP (dioxin was a contaminant of PCP),
- o The material in the trolley track area is of the same composition as material in the main yard. After pressure treatment, the wood was temporarily stored on the trolley track until it was moved onto the main yard, and
- o While stored on the main yard, the treated wood continued to "weep". The majority of the staining observed during the Remedial Investigation (RI) is associated with the weeping of the wood.
- o Residue from the treatment process was occasionally used for dust control on the site roadway using a mixture of mostly water with some wood treatment oils.

ERM-Southwest, Inc.

Ms. Jean A. Mescher
McKesson Corporation
March 9, 1992

Based on these operational facts, one must conclude dioxin is distributed in approximately the same ratio as the PCP and petroleum oil for the main site and the trolley track area. *OK assumption*

IV. CONCLUSIONS

Our conclusions regarding the salient points of Dr. Bern's and Ms. Brands letter can be summarized as follows:

1. We agree that:
 - a. if dioxin were no longer as limiting a consideration as it now is,
 - b. if a more cost effective remedy could be designed to treat whatever volume of affected material exists,
 - c. if that alternate remedy can meet the cleanup criteria defined in the ROD, and
 - d. if EPA will retain all other aspects of the ROD but be willing to be flexible in accepting an alternate, possibly innovative, cost effective remedy for the fine material remaining after sieve and wash, we would be in favor of pursuing an alternative remedy in lieu of the present ROD required remedy.
2. We strongly disagree with Dr. Bern's estimate that only three percent of the total excavated material will require incineration, and
3. We do not agree that our data regarding dioxin, c-PNAs or PCP is wrong or inconclusive; we have a substantial amount of information and we plan to supplement it in the predesign phase. ✓
4. We do not agree that Dr. Bern's proposed \$8,000 sampling program can or will provide any more conclusive or useful data than that which will be obtained by the comprehensive sampling program already required by the SOW. ✓

ERM-Southwest, Inc.

Ms. Jean A. Mescher
McKesson Corporation
March 9, 1992

As mentioned at the beginning of this letter, we certainly accept Dr. Bern's and Ms. Brand's theoretical premise that it makes sense to use the most cost effective means to treat whatever volume of affected soil may exist. We do not feel, however, that if one were to consider all the facts available it would be reasonable to expect Dr. Bern's remedy to meet that criteria.

Sincerely,

ERM-SOUTHWEST, INC.



Ronald T. Grimes, P.E.

RTG/sms:AP06092-02
Attachments

cc: Dinah L. Szander, Esq., McKesson Corp.
Robert Ritchie, McKesson Corp.
Bob Barker, Mass Merchandisers, Inc.
Allan Gates, Mitchell, Williams, Selig & Tucker
Douglas Diehl, ERM-Southwest, Inc.
Steven Calhoun, ERM-Southwest, Inc.
B.C. Robison, ERM-Southwest, Inc.

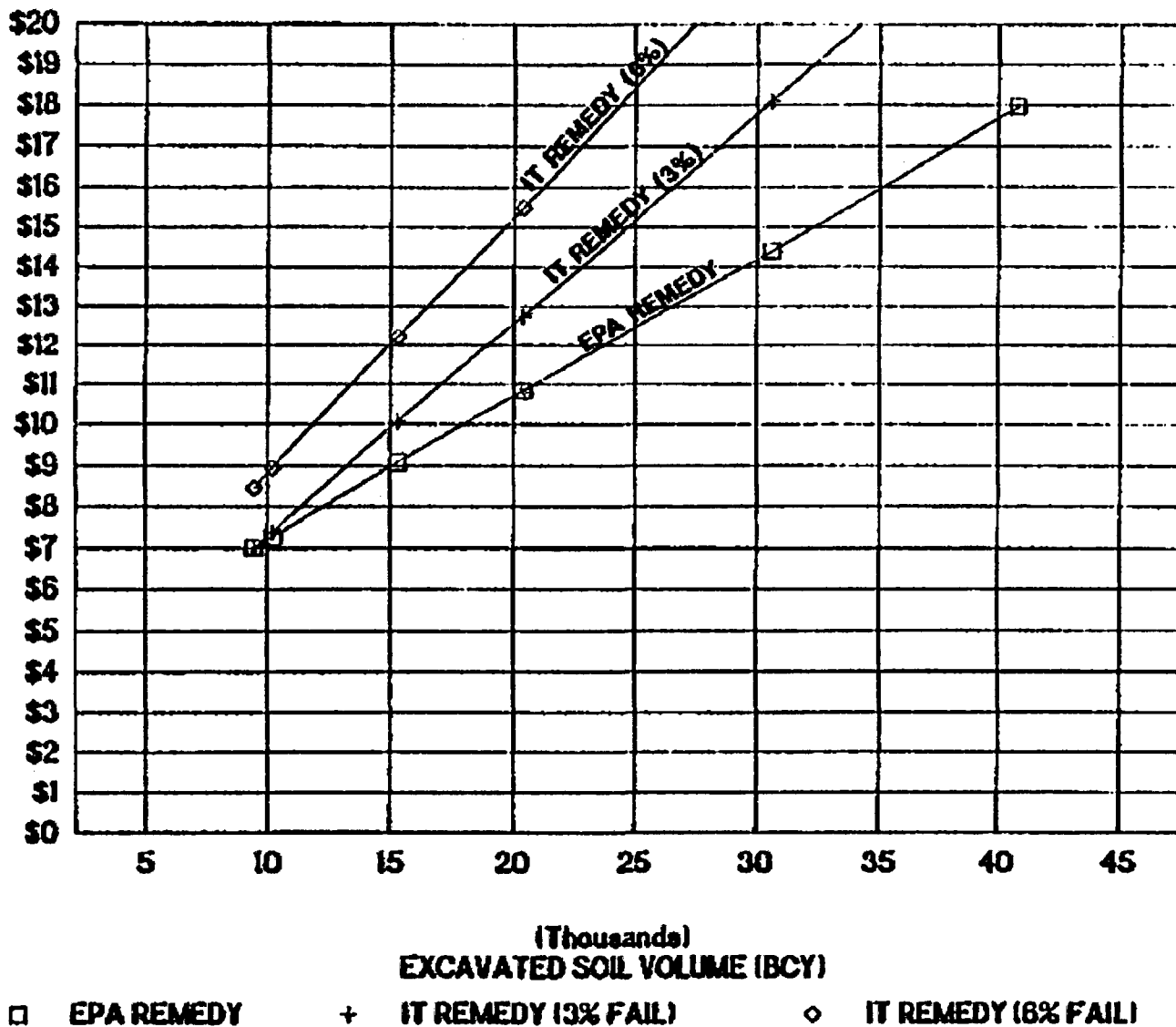
Reality Check

EPA said dioxin is the
driver, and that ends most
other arguments.

FIGURE 1 VOLUME SENSITIVITY ANALYSIS

ARKWOOD SITE, OMAHA, ARKANSAS

TOTAL ESTIMATED COST
(Millions)



13/17

TABLE 1
PRELIMINARY COMPARATIVE COST ESTIMATE DETAIL

Eastern Group FS Comments
Advised Site, Omaha, Arkansas

POD REMEDIATION ELEMENT COMPONENT	EPA REMEDY AND QUANTITIES WITH REMOVED INCERATION UNIT COSTS			IT REMEDY AND IT QUANTITIES (2%) REMOVED COSTS/QUANTITIES			IT REMEDY AND IT QUANTITIES (2%) REMOVED COSTS/QUANTITIES			IT REMEDY AND IT QUANTITIES REMOVED COSTS/QUANTITIES (EXCEPT OFF-SITE)		
	ESTIMATED QUANTITY	ESTIMATED UNITS	ESTIMATED UNIT COST	ESTIMATED QUANTITY	ESTIMATED UNITS	ESTIMATED UNIT COST	ESTIMATED QUANTITY	ESTIMATED UNITS	ESTIMATED UNIT COST	ESTIMATED QUANTITY	ESTIMATED UNITS	ESTIMATED UNIT COST
- COMMON ITEMS												
Common Items	1 LB	310,000	310,000	1 LB	310,000	310,000	1 LB	310,000	310,000	1 LB	310,000	310,000
Subtotal			310,000			310,000			310,000			310,000
Cost Overhead, Profit & Bonds	310,000 SUM	20%	62,000	310,000 SUM	20%	62,000	310,000 SUM	20%	62,000	310,000 SUM	20% b	62,000
Contingency	372,000 SUM	25%	93,000	372,000 SUM	25%	93,000	372,000 SUM	25%	93,000	372,000 SUM	25% b	93,000
Eng. & Const. Serv.	465,000 SUM	20%	93,000	465,000 SUM	20%	93,000	465,000 SUM	20%	93,000	465,000 SUM	20% b	93,000
Subtotal, Common Items			658,000			658,000			658,000			658,000 e
6 FENCE ENTIRE SITE												
Install/Fencing	(Included Above)		0	(Included Above)		0	(Included Above)		0	(Included Above)		0
Fence Maintenance	1 LB	31,000	31,000	1 LB	31,000	31,000	1 LB	31,000	31,000	1 LB	31,000	31,000
Subtotal			31,000			31,000			31,000			31,000
Contingency	31,000 SUM	25%	7,750	31,000 SUM	25%	7,750	31,000 SUM	25%	7,750	31,000 SUM	25% b	7,750
Eng. & Const. Serv.	38,750 SUM	20%	7,750	38,750 SUM	20%	7,750	38,750 SUM	20%	7,750	38,750 SUM	20% b	7,750
Subtotal, Fence Entire Site			46,500			46,500			46,500			46,500 e
510 MONITOR AREA SPRINGS AND DIRTY WELLS (30 yrs)(See Alternative B in F1)												
Monitoring	1 LB	194,000	194,000	1 LB	194,000	194,000	1 LB	194,000	194,000	1 LB	194,000	194,000
Subtotal			194,000			194,000			194,000			194,000
Contingency	194,000 SUM	25%	48,500	194,000 SUM	25%	48,500	194,000 SUM	25%	48,500	194,000 SUM	25% b	48,500
Eng. & Const. Serv.	242,500 SUM	20%	48,500	242,500 SUM	20%	48,500	242,500 SUM	20%	48,500	242,500 SUM	20% b	48,500
Subtotal, Monitoring			291,000			291,000			291,000			291,000 e
67 PLACE TOPSOIL CAP OVER ENTIRE SITE SEED CAP WITH NATIVE GRASSES												
Cap and Seed	1 LB	483,220	483,220	1 LB	483,220	483,220	1 LB	483,220	483,220	1 LB	483,220	483,220
Subtotal			483,220			483,220			483,220			483,220
Cost Overhead, Profit & Bonds	483,220 SUM	20%	96,644	483,220 SUM	20%	96,644	483,220 SUM	20%	96,644	483,220 SUM	20% b	96,644
Contingency	579,864 SUM	25%	144,966	579,864 SUM	25%	144,966	579,864 SUM	25%	144,966	579,864 SUM	25% b	144,966
Eng. & Const. Serv.	724,830 SUM	20%	144,966	724,830 SUM	20%	144,966	724,830 SUM	20%	144,966	724,830 SUM	20% b	144,966
Subtotal, Cap and Seed			880,788			880,788			880,788			880,788 e

14117

TABLE I
PRELIMINARY COMPARATIVE COST ESTIMATE DETAIL

Exxon Group FS Comments
Adwood Site, Oncha, Arkansas

ROD REMEDIATION ELEM COMPONENT	EPA REMEDY AND QUANTITIES WITH REVISED INCINERATION UNIT COSTS				IT REMEDY AND IT QUANTITIES (24) REVISED COSTS/QUANTITIES				IT REMEDY AND IT QUANTITIES (25) REVISED COSTS/QUANTITIES				IT REMEDY AND IT QUANTITIES REVISED COSTS/QUANTITIES (EXCEPT OFF-SITE)			
	ESTIMATED QUANTITY	ESTIMATED UNITS	ESTIMATED UNIT COST	ESTIMATED COST	ESTIMATED QUANTITY	ESTIMATED UNITS	ESTIMATED UNIT COST	ESTIMATED COST	ESTIMATED QUANTITY	ESTIMATED UNITS	ESTIMATED UNIT COST	ESTIMATED COST	ESTIMATED QUANTITY	ESTIMATED UNITS	ESTIMATED UNIT COST	ESTIMATED COST
12/5 ONSITE INCINERATION OF SLUDGES AND AFFECTED SOIL AFTER SEVE AND WASH																
% Soil to be Incinerated	80%															
Excavate Sludges	430 SCY		3.20	1,405												
Excavate Affected Soils	20,400 SCY		3.50	71,400												
Incinerate Sludge/Affected Soil																
Mobilization	1 LB		150,000	150,000												
Trailer, Analysis and Report	1 LB		125,000	125,000												
Incineration	10,400 TONS		875	9,100,000												
Demobilization	1 LB		100,000	100,000												
Bankfill Mixed Ash/Scrubber Blowdown	20,820 SCY		1.50	31,230												
Site Facilities & Utilities—Capital	1.0 YR		77,000	77,000												
Site Facilities & Utilities—Oper.	1.0 YR		150,000	150,000												
Subtotal				4,872,000												
Cont. Overl. Profit & Bonds	284,150 SUM		20%	72,830												
Contingency	4,745,790 SUM		25%	1,186,450												
Eng. & Const. Serv.	5,035,180 SUM		20%	1,007,030												
Subtotal, Onsite Incineration				\$7,118,000												

15/17

TABLE 1
PRELIMINARY COMPARATIVE COST ESTIMATE DETAIL

Excerpt Group F5 Comments
Advised Site, Omaha, Arkansas

A00 REMEDIATION B00 COMPONENT	EPA REMEDY AND QUANTITIES WITH REVISED INCINERATION UNIT COSTS			(T) REMEDY AND IT QUANTITIES (3%) REVISED COSTS/QUANTITIES			(T) REMEDY AND IT QUANTITIES (3%) REVISED COSTS/QUANTITIES			(T) REMEDY AND IT QUANTITIES REVISED COSTS/QUANTITIES (EXCEPT OFF-SITE)		
	ESTIMATED QUANTITY UNITS	ESTIMATED UNIT COST	ESTIMATED COST	ESTIMATED QUANTITY UNITS	ESTIMATED UNIT COST	ESTIMATED COST	ESTIMATED QUANTITY UNITS	ESTIMATED UNIT COST	ESTIMATED COST	ESTIMATED QUANTITY UNITS	ESTIMATED UNIT COST	ESTIMATED COST
B01 DYE AND WASH EXCAVATED SOILS												
% Soil Filling Bioremediation				3%			3%			3%		
Excavate Sludge				430 BCY	3.50	1,505	430 BCY	3.50	1,505	430 BCY	3.50	1,505
Excavate Affected Soils				8,444 BCY	3.50	29,554	8,444 BCY	3.50	29,554	8,444 BCY	3.50	29,554
Slime and Wash Soils	20,400 BCY	52	1,060,800	8,700 TONS	75	652,500	8,700 TONS	75	652,500	8,700 TONS	75	652,500
Slime Soils				4,800 TONS	50	240,000	4,800 TONS	50	240,000	4,800 TONS	50	240,000
Backfill Treated Soil	14,980 BCY	1.50	22,470	6,180 BCY	1.50	9,270	6,180 BCY	1.50	9,270	6,180 BCY	1.50	9,270
Bioremediation - Soils and Sludge				4,500 BCY	175	787,500	4,500 BCY	175	787,500	4,500 BCY	175	787,500
Site Facilities & Utilities-Capital				1 LB	77,000	77,000	1 LB	77,000	77,000	1 LB	77,000	77,000
Site Facilities & Utilities-Oper				1 LB	163,000	163,000	1 LB	163,000	163,000	1 LB	163,000	163,000
Offsite Incineration												
Transportation				22 LOADS	1,050	23,100	44 LOADS	1,050	46,200	22 LOADS	1,050	23,100
Incineration				430 TONS	2,000	860,000	663 TONS	2,000	1,326,000	630 TONS	2,000	1,260,000
Subtotal			1,082,220			3,067,700			4,944,470			3,353,140
Cont. Ovhd, Profit & Bonds	1,082,220 SUM	30%	314,644	3,067,700 SUM	30%	920,310	4,944,470 SUM	30%	1,483,341	3,353,140 SUM	30% b	1,005,942
Contingency	1,396,864 SUM	30%	419,059	3,486,990 SUM	30%	1,046,097	4,432,825 SUM	30%	1,329,848	3,801,880 SUM	30% b	1,140,564
Eng. & Const. Serv.	1,623,330 SUM	30%	486,999	4,367,904 SUM	30%	1,310,371	5,378,600 SUM	30%	1,613,580	4,762,111 SUM	30% b	1,428,633
Subtotal, Slime and Wash, Bioremed			1,946,000			5,230,000			6,824,000			6,703,000
TOTAL ESTIMATED PROJECT COST			10,832,000			15,806,000			21,468,000			17,468,000
ON-SITE INCINERATION			4,308,750			0			0			0
OFF-SITE INCINERATION			0			975,100			1,062,200			1,244,000

16/17

TABLE 1
PRELIMINARY COMPARATIVE COST ESTIMATE DETAIL

Eastern Group FS Comments
Adairwood Site, Omaha, Arkansas

ROD REMEDIATION ELEM COMPONENT	ESTIMATED QUANTITY UNITS UNIT COST COST			ESTIMATED QUANTITY UNITS UNIT COST COST			ESTIMATED QUANTITY UNITS UNIT COST COST			ESTIMATED QUANTITY UNITS UNIT COST COST		
	ESTIMATED QUANTITY UNITS	ESTIMATED UNIT COST	ESTIMATED COST	ESTIMATED QUANTITY UNITS	ESTIMATED UNIT COST	ESTIMATED COST	ESTIMATED QUANTITY UNITS	ESTIMATED UNIT COST	ESTIMATED COST	ESTIMATED QUANTITY UNITS	ESTIMATED UNIT COST	ESTIMATED COST

NOTES:

- a - IT 1002, Table 3; after ERM-Southwest 1000, Table 3-1b.
- b - IT 1002, Table 3, percentage.
- c - IT 1002, Table 3, subtotal.
- d - IT 1002, Table 3.
- e - Unit weight inferred from IT volume and weight.
- f - IT 1002, Table 3; unit cost inferred from IT qty. and IT subtotal.
- g - IT 1002, Table 3; insufficient detail provided to evaluate.
- h - ERM-Southwest 1000, quoted in IT 1002, Table 3.
- i - Telephone quote, Follis Environmental Services (TX), Houston, Texas (no closer TED > 20 ug/kg).
- j - Cost of on-site incineration contractor overhead, profit, and bonds included in unit cost noted above.
- k - Cost of off-site haul and incineration contractor overhead, profit, and bonds included in unit cost noted above.

REFERENCES:

ERM-Southwest 1000 Feasibility Study, Adairwood, Inc. Site, Omaha, Arkansas; ERM-Southwest, Inc., Houston, Texas, May 23, 1990.
IT 1002 Letter to FAX, J. Barn to M. G. Brand IT Corp., February 13, 1992 (not signed).

17117

TOTAL P.17

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVE DALLAS, TX 75202

FACSIMILE REQUEST

and cover sheet

FROM THE **HAZARDOUS WASTE
MANAGEMENT DIVISION**

PLEASE PRINT IN BLACK INK ONLY**TO:** MIKE CAVALIER:**FAX** 713
Number: 621-6959**Office/Phone:** 621-1620**Verification Numbers****FROM:** RICK EHRHART(214)
Phone: 655-6582**Mail Code:** 6H-5A**Office:** EPA DALLAS**Date:** 3/17/92**NUMBER OF PAGES,
INCLUDING COVER SHEET**

17

PLEASE NUMBER ALL PAGES**INFORMATION FOR SENDING FACSIMILE MESSAGES****EQUIPMENT**

PANAFAX UF-620

FACSIMILE NUMBERFTS: 255-6460
COMM: (214) 655-6460**VERIFICATION NUMBER**FTS: 255-6790
COMM: (214) 655-6790